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## EXAMPLE 11

Anti- $\beta$ -hCG (Fab) Biograting Immunoassay

The 4×6 mm chips prepared in Example 10 were mounted on a microscope slide and incubated with 600, 300, 150, 75 and 0 mIU/ml of  $\beta$ -hCG solutions (test samples) at room temperature for 5 min. The surface was washed with deionized water and dried with a stream of air. The diffraction intensities of the surfaces were determined with a Model 61 optometer to give a dose response curve shown in FIG. 7.

We claim:

1. A reflective biograting comprising an optically flat layer of a transparent composition of about 100 to 3000 Å having a first and second surface, alternating zones of active and inactive binding reagent on the first surface, and a reflective metal layer having a thickness of at least about 1000 Å on the second surface, said metal layer having an inherent reflectivity of at least about 40%.

2. The reflective biograting of claim 1 wherein the reflective metal layer is supported on an optically flat surface.

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3. The reflective biograting of claim 1 wherein the reflective metal is aluminum, gold, silver, chromium, platinum, nickel or titanium.

4. The reflective biograting of claim 1 wherein the transparent composition layer comprises silicon dioxide.

5. The reflective biograting of claim 1 wherein the transparent composition layer is about 250 to 1000 Å.

6. The reflective biograting of claim 1 wherein the transparent composition layer comprises an alkali metal silicate.

7. The reflective biograting of claim 6 wherein the transparent composition layer is about 1000 Å.

8. The reflective biograting of claim 6 wherein the alkali metal silicate solution contains from 1 to 20 mg/ml of a water-soluble hydroxylated polymer.

9. The reflective biograting of claim 8 wherein the hydroxylated polymer is a dextran having a molecular weight in the range of from 5000 to 500,000.

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